

REMARKS

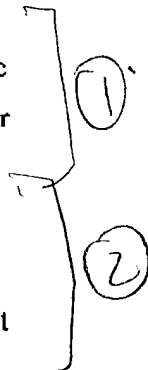
Claim 2 was objected to due to an informality and has been amended to overcome the informality.

Claims 1-6 were rejected under 35 U.S.C. § 102 or 103 as being unpatentable over Gungor. This rejection is traversed for the following reasons.

Claim 1 recites "a substrate having a first face and a second face, the second face being disposed parallel to the first face, the material of which said substrate is fabricated having anisotropic thermal conductivity with a first thermal conductivity value in a direction parallel to the faces and a second thermal conductivity value in a direction normal to the faces, the second thermal conductivity value being less than the first thermal conductivity value." As described in an exemplary embodiment shown in Applicants' Figure 1, the substrate 12 has higher thermal conductivity in the X and Y directions than in the Z direction. Thus, the conduits 14 improve the thermal conduction in the Z direction.

Gungor fails to teach or suggest the anisotropic thermal conductivity recited in claim 1. Gungor discloses using a hybrid metal based composite substrate carrier consisting of an aluminum matrix reinforced with other materials. Nowhere does Gungor teach or suggest that the carrier has anisotropic thermal conductivity. In fact, such metal based substrates (e.g., aluminum or copper) typically have isotropic thermal conductivity.

The Examiner asserts that Gungor teaches the same ingredients and structures and thus the thermal conductivity in the vertical direction would be greater than the horizontal direction because the copper based inserts are highly thermally conductive. Claim 1 recites that the substrate alone has the anisotropic thermal conductivity, not the substrate in conjunction with the conduits. Thus, the comparison of the combination of the carrier and inserts in Gungor to the claimed substrate is improper. Further, the Examiner characterized Gungor as having a thermal conductivity in the vertical direction greater than the thermal conductivity in the horizontal direction. This is opposite to the description of the substrate in claim 1. Accordingly, Gungor neither teaches nor suggest the features of claim 1.

A handwritten bracket on the right side of the text, spanning from the paragraph starting with 'The Examiner asserts...' down to the paragraph starting with 'For the above reasons...'. To the right of the bracket, there are two circled numbers: a circled '1' next to the first paragraph and a circled '2' next to the second paragraph.

For the above reasons, claim 1 is patentable over Gungor. Claims 2-6 variously depend from claim 4 and are patentable for at least the reasons advanced with respect to

claim 4.

Claims 7-14 were rejected under 35 U.S.C. § 103 as being unpatentable over Gungor in view of Eckblad. Eckblad was relied upon for allegedly disclosing an adhesive and thermal paste. Claims 7-14 recite features similar to those in claim 1. Eckblad fails to cure the deficiencies of Gungor described above with reference to claim 1. Thus, claims 7-14 are patentable for at least the reasons advanced with respect to claim 1.

If there are any charges due in connection with this response, please charge them to Deposit Account 09-0463 maintained by Applicants' Assignee.

Respectfully submitted,

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